

## 1.0 USE AND APPLICATION

## 1.1 Definitions

## -----NOTE-----

The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

<u>Term</u>	<u>Definition</u>
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state required for OPERABILITY of a logic circuit and the verification of the required logic output.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

## 1.1 Definitions (continued)

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CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor output as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites".

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1.1 Definitions (continued)

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$\bar{E}$  -AVERAGE DISINTEGRATION ENERGY       $\bar{E}$  shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.

LEAKAGE      LEAKAGE from the Reactor Coolant System (RCS) shall be:

a.      Identified LEAKAGE

1.      LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2.      LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or
3.      RCS LEAKAGE through a steam generator (SG) to the Secondary System;

b.      Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;

c.      Pressure Boundary LEAKAGE

LEAKAGE (except SG LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

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1.1 Definitions (continued)

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MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing all master relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required master relay. The MASTER RELAY TEST shall include a continuity check of each associated required slave relay. The MASTER RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	<p>PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:</p> <ul style="list-style-type: none"><li>a. Described in Appendix J of the USAR, Pre-Operational and Startup Tests;</li><li>b. Authorized under the provisions of 10 CFR 50.59; or</li><li>c. Otherwise approved by the Nuclear Regulatory Commission.</li></ul>

## 1.1 Definitions (continued)

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PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, and the OPPS arming temperature for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Plant operation within these operating limits is addressed in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSCLT) > Safety Injection (SI) Pump Disable Temperature," and LCO 3.4.13, "Low Temperature Overpressure Protection (LTOP) - Reactor Coolant System Cold Leg Temperature (RCSCLT) ≤ Safety Injection (SI) Pump Disable Temperature."
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 1650 MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor output until opening of a reactor trip breaker. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

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1.1 Definitions (continued)

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SHUTDOWN MARGIN (SDM)	<p>SDM shall be the instantaneous amount of reactivity by which:</p> <ol style="list-style-type: none"><li>The reactor is subcritical; or</li><li>The reactor would be subcritical from its present condition assuming all rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design temperature.</li></ol>
SLAVE RELAY TEST	<p>A SLAVE RELAY TEST shall consist of energizing all slave relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required slave relay. The SLAVE shall include a continuity check of associated required testable actuation devices. The SLAVE RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.</p>
STAGGERED TEST BASIS	<p>A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <math>n</math> Surveillance Frequency intervals, where <math>n</math> is the total number of systems, subsystems, channels, or other designated components in the associated function.</p>

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1.1 Definitions (continued)

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THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.

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Table 1.1-1 (page 1 of 1)  
MCDES

MODE	TITLE	REACTIVITY CONDITION ( $k_{eff}$ )	% RATED THERMAL POWER <sup>(a)</sup>	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	$\geq 0.99$	$> 5$	NA
2	Startup	$\geq 0.99$	$\leq 5$	NA
3	Hot Standby	$< 0.99$	NA	$\geq 350$
4	Hot Shutdown <sup>(b)</sup>	$< 0.99$	NA	$350 > T_{avg} > 200$
5	Cold Shutdown <sup>(b)</sup>	$< 0.99$	NA	$\leq 200$
6	Refueling <sup>(c)</sup>	NA	NA	NA

(a) Excluding decay heat.

(b) All reactor vessel head closure bolts fully tensioned.

(c) One or more reactor vessel head closure bolts less than fully tensioned.



## 1.0 USE AND APPLICATION

### 1.2 Logical Connectors

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**PURPOSE** The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

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**BACKGROUND** Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

1.2 Logical Connectors (continued)

EXAMPLES            The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1    Verify . . .  <u>AND</u>  A.2    Restore . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

## 1.2 Logical Connectors

EXAMPLES  
(continued)EXAMPLE 1.2-2ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip . . . <u>OR</u> A.2.1 Verify . . . <u>AND</u> A.2.2.1 Reduce . . . <u>OR</u> A.2.2.2 Perform . . . <u>OR</u> A.3 Align . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

## 1.0 USE AND APPLICATION

### 1.3 Completion Times

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PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
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BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
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DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p>
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If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry

### 1.3 Completion Times

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DESCRIPTION (continued)	<p>into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.</p> <p>However, when a <u>subsequent</u> train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. The Completion Time extension cannot be used to extend the stated Completion Time for the first inoperable train, subsystem, component, or variable. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:</p> <ol style="list-style-type: none"> <li>a. Must exist concurrent with the <u>first</u> inoperability; and</li> <li>b. Must remain inoperable or not within limits after the first inoperability is resolved.</li> </ol> <p>The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:</p> <ol style="list-style-type: none"> <li>a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or</li> <li>b. The stated Completion Time as measured from discovery of the subsequent inoperability.</li> </ol> <p>The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.</p>
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### 1.3 Completion Times

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DESCRIPTION (continued)	<p>The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."</p> <p>Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended. An example of a modified "time zero" with the Completion Time expressed as "once per 8 hours" is illustrated in Example 1.3-6, Condition A. In this example, the Completion Time may not be extended.</p>
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### 1.3 Completion Times (continued)

#### EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

#### EXAMPLE 1.3-1

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-2

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One train inoperable.	A.1 Restore train to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

When a train is declared inoperable, Condition A is entered. If the train is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable train is restored to OPERABLE status after Condition B is entered, Condition A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second train is declared inoperable while the first train is still inoperable, Condition A is not re-entered for the second train. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable train. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.



### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-2 (continued)

While in LCO 3.0.3, if either of the inoperable trains is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

While in LCO 3.0.3, if either of the inoperable trains is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

Upon restoring either of the trains to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first train was declared inoperable. This Completion Time may be extended if the train restored to OPERABLE status was the first inoperable train. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second train being inoperable for > 7 days.

### 1.3 Completion Times

EXAMPLES  
(continued)

#### EXAMPLE 1.3-3

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO

### 1.3 Completion Times

#### EXAMPLES

#### EXAMPLE 1.3-3 (continued)

##### ACTIONS

C. One Function X train inoperable.	C.1 Restore Function X train to OPERABLE status.	72 hours
<u>AND</u>	<u>OR</u>	
One Function Y train inoperable.	C.2 Restore Function Y train to OPERABLE status.	72 hours

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-3 (continued)

The Completion Times of Conditions A and B are modified by a logical connector with a separate 10 day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock". In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-4

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u>	6 hours
	B.2 Be in MODE 4.	12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-5

If the Completion Time of 4 hours (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each inoperable valve.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 4.	12 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-5 (continued)

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-6

##### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x.	Once per 8 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to $\leq 50\%$ RTP.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed, and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required



1.3 Completion Times

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EXAMPLES

EXAMPLE 1.3-6 (continued)

Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

### 1.3 Completion Times

#### EXAMPLES (continued)

#### EXAMPLE 1.3-7

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour <u>AND</u> Once per 8 hours thereafter
	<u>AND</u> A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

### 1.3 Completion Times

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#### EXAMPLES

#### EXAMPLE 1.3-7 (continued)

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

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#### IMMEDIATE COMPLETION TIME

When “Immediately” is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

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## 1.0 USE AND APPLICATION

### 1.4 Frequency

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**PURPOSE** The purpose of this section is to define the proper use and application of Frequency requirements.

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**DESCRIPTION** Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The “specified Frequency” is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The “specified Frequency” consists of the requirements of the Frequency column of each SR as well as certain Notes in the Surveillance column that modify performance requirements.

Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are “otherwise stated” conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only “required” when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of “met” or “performed” in these instances conveys specific meanings. A Surveillance is “met” only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance,

## 1.4 Frequency

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### DESCRIPTION (continued)

even without a Surveillance specifically being “performed,” constitutes a Surveillance not “met.” “Performance” refers only to the requirement to specifically determine the ability to meet the acceptance criteria.

Some Surveillances contain notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

- a. The Surveillance is not required to be met in the MODE or other specified condition to be entered; or
- b. The Surveillance is required to be met in the MODE or other specified condition to be entered, but has been performed within the specified Frequency (i.e., it is current) and is known not to be failed; or
- c. The Surveillance is required to be met, but not performed, in the MODE or other specified condition to be entered, and is known not to be failed.

Examples 1.4-3, 1.4-4, 1.4-5, and 1.4-6 discuss these special situations.

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### EXAMPLES

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

## 1.4 Frequency

EXAMPLES  
(continued)EXAMPLE 1.4-1SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

## 1.4 Frequency

EXAMPLES  
(continued)EXAMPLE 1.4-2SURVEILLANCE REQUIREMENTS

<u>SURVEILLANCE</u>	<u>FREQUENCY</u>
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP  <u>AND</u>  24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

## 1.4 Frequency

### EXAMPLES (continued)

#### EXAMPLE 1.4-3

##### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after <math>\geq 25\%</math> RTP.</p> <p>-----</p> <p>Perform channel adjustment.</p>	7 days

The interval continues, whether or not the unit operation is  $< 25\%$  RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the “specified Frequency.” Should the 7 day interval be exceeded while operation is  $< 25\%$  RTP, this Note allows 12 hours after power reaches  $\geq 25\%$  RTP to perform the Surveillance. The Surveillance is still considered to be performed within the “specified Frequency.” Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was  $< 25\%$  RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power  $\geq 25\%$  RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.



1.4 Frequency

EXAMPLES  
(continued)

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Only required to be met in MODE 1. -----</p> <p>Verify leakage rates are within limits.</p>	24 hours

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an “otherwise stated” exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

## 1.4 Frequency

EXAMPLES  
(continued)EXAMPLE 1.4-5SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Only required to be performed in MODE 1. -----</p> <p>Perform complete cycle of the valve.</p>	7 days

The interval continues, whether or not the unit operation is in MODE 1, 2, or 3 (the assumed Applicability of the associated LCO) between performances.

As the Note modifies the required performance of the Surveillance, the Note is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is not in MODE 1, this Note allows entry into and operation in MODES 2 and 3 to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency" if completed prior to entering MODE 1. Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was not in MODE 1, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not result in entry into MODE 1.

Once the unit reaches MODE 1, the requirement for the Surveillance to be performed within its specified Frequency applies and would require that the Surveillance had been performed. If the Surveillance were not performed prior to entering MODE 1, there would then be a

## 1.4 Frequency

### EXAMPLES

#### EXAMPLE 1.4-5 (continued)

failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

#### EXAMPLE 1.4-6

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>-----NOTE----- Not required to be met in MODE 3. -----</p> <p>Verify parameter is within limits.</p>	24 hours

Example 1.4-6 specifies that the requirements of this Surveillance do not have to be met while the unit is in MODE 3 (the assumed Applicability of the associated LCO is MODES 1, 2, and 3). The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), and the unit was in MODE 3, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES to enter MODE 3, even with the 24 hour Frequency exceeded, provided the MODE change does not result in entry into MODE 2. Prior to entering MODE 2 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

## 2.0 SAFETY LIMITS (SLs)

---

### 2.1 SLs

#### 2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure shall not exceed the SLs specified in Figure 2.1.1-1.

#### 2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained  $\leq 2735$  psig.

---

### 2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

---

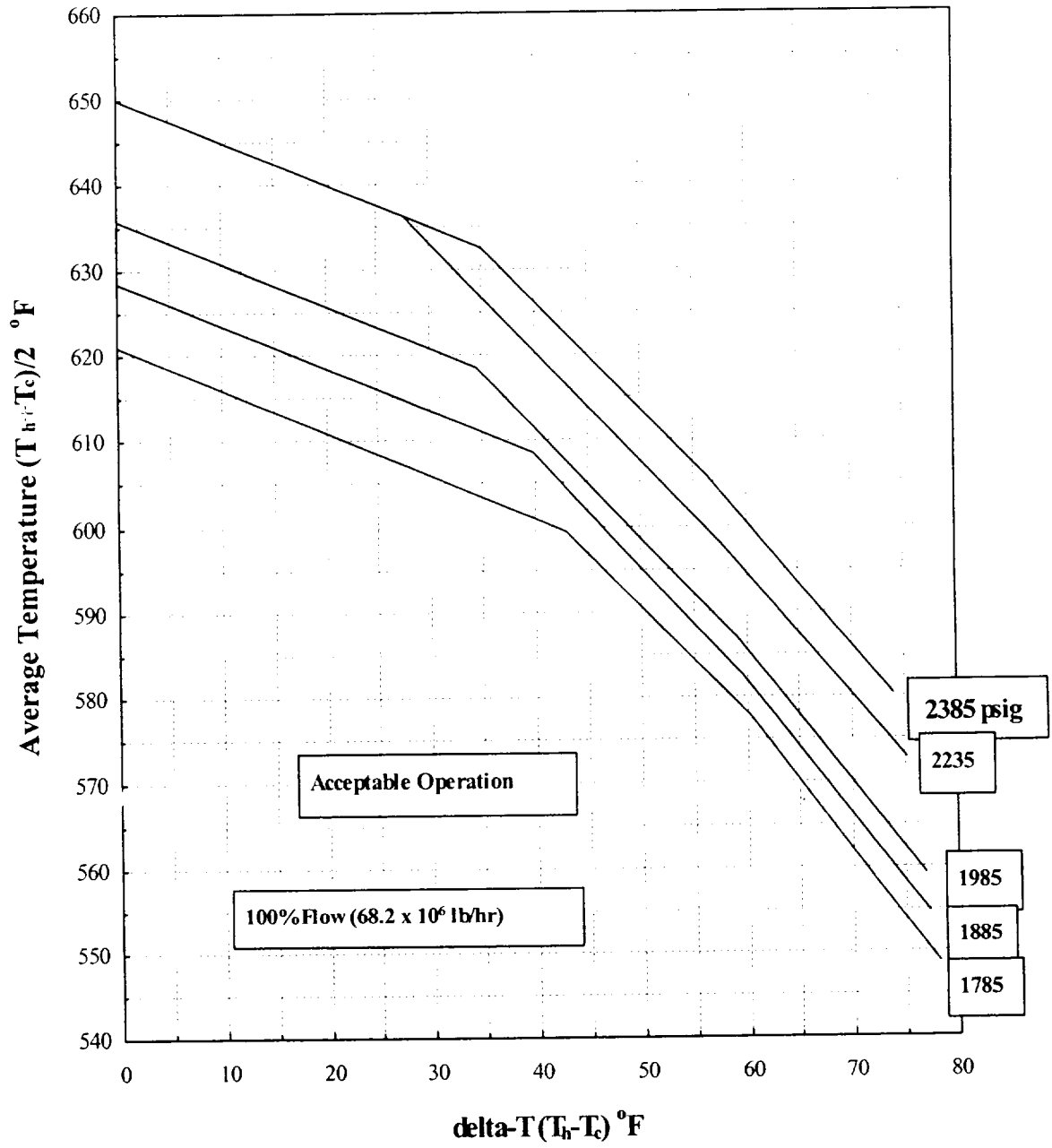


Figure 2.1.1-1 (page 1 of 1)  
Reactor Core Safety Limits

---

### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

---

LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and 3.0.7.

---

LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5, LCO 3.0.6 and LCO 3.0.8.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

---

LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 3 within 7 hours;
- b. MODE 4 within 13 hours; and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

### 3.0 LCO APPLICABILITY (continued)

---

LCO 3.0.4      When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

---

LCO 3.0.5      Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

---

LCO 3.0.6      When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.13, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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### 3.0 LCO APPLICABILITY

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LCO 3.0.6  
(continued)      When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

---

LCO 3.0.7      Test Exception LCOs 3.1.8 and 3.4.18 allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

---

LCO 3.0.8      When a Technical Specification supported system LCO is not met solely due to the inoperability of a non-Technical Specification support system listed below, the Technical Specification supported system LCO is considered to be met unless the associated delay time of the non-Technical Specification support system has expired. This is an exception to LCO 3.0.2 for the Technical Specification. Upon expiration of the non-Technical Specification support system delay time, the Technical Specification supported system shall be declared inoperable and the applicable Conditions and Required Actions for the Technical Specification supported system shall be entered in accordance with LCO 3.0.2.

<u>Non-Technical Specification Support System</u>	<u>Delay Time</u>
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Snubbers	72 hours
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3.0 LCO APPLICABILITY (continued)

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LCO 3.0.9 Unless specifically noted, all the information provided in the LCO including the associated ACTION requirements shall apply to each unit individually. Whenever certain portions of a specification refer to systems, components, operating parameters, setpoints, etc., which are different for each unit, this will be identified in parentheses or notes or in the Applicability section as appropriate.

---

### 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

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SR 3.0.1      SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

---

SR 3.0.2      The specified Frequency for each SR is met, except for SRs with a specified Frequency of 24 months, if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

The specified Frequency is met for each SR with a specified Frequency of 24 months if the Surveillance is performed within 24 months, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as “once,” the above interval extension (1.25 times the interval specified) does not apply.

If a Completion Time requires periodic performance on a “once per . . .” basis, the interval extension (1.25 times the interval specified) applies to each performance after the initial performance.

Exceptions to this Specification are stated in the individual Specifications.

### 3.0 SR APPLICABILITY (continued)

---

SR 3.0.3      If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

---

SR 3.0.4      Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3 and 4.

---

---

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.1 SHUTDOWN MARGIN (SDM)

LCO 3.1.1 SDM shall be within the limits provided in the COLR

APPLICABILITY: MODE 2 with  $k_{\text{eff}} < 1.0$ ,  
MODES 3, 4, and 5.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM is within limits.	24 hours

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.2 Core Reactivity

LCO 3.1.2 The measured core reactivity shall be within  $\pm 1\% \Delta k/k$  of predicted values.

APPLICABILITY: MODE 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Measured core reactivity not within limit.	A.1 Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.	7 days
	<u>AND</u> A.2 Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	Verify measured core reactivity is within $\pm 1\%$ $\Delta k/k$ of predicted values.	Prior to entering MODE 1 after each refueling
SR 3.1.2.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Only required to be performed after 60 effective full power days (EFPD).</li> <li>2. The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 EFPD after each fuel loading.</li> </ol> <p>-----</p> <p>Verify measured core reactivity is within <math>\pm 1\%</math> <math>\Delta k/k</math> of predicted values.</p>	31 EFPD

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.3 Isothermal Temperature Coefficient (ITC)

LCO 3.1.3 The ITC shall be maintained within the limits specified in the COLR. The maximum COLR upper limit shall be:

- a.  $< 5 \text{ pcm}/^{\circ}\text{F}$  for power levels  $\leq 70\%$  RTP; and
- b.  $< 0 \text{ pcm}/^{\circ}\text{F}$  for power levels  $> 70\%$  RTP.

APPLICABILITY: MODE 1 and MODE 2 with  $k_{\text{eff}} \geq 1.0$  for the upper ITC limit, MODES 1, 2, and 3 for the lower ITC limit.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ITC not within upper limit.	A.1 Establish administrative withdrawal limits for control banks to maintain ITC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2 with $k_{\text{eff}} < 1.0$ .	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. -----NOTE----- Required Action C.1 must be completed whenever Condition C is entered. -----</p> <p>Projected end of cycle (EOC) ITC not within lower limit.</p>	<p>-----NOTE----- LCO 3.0.4 is not applicable. -----</p> <p>C.1 Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.</p>	<p>Once prior to reaching the equivalent of an equilibrium RTP all rods out boron concentration of 300 ppm</p>
<p>D. Required Action and associated Completion Time of Condition C not met.</p>	<p>D.1 Be in MODE 4.</p>	<p>12 hours</p>



## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.3.1 Verify ITC is within upper limit.	Once prior to entering MODE 1 after each refueling
SR 3.1.3.2 Verify ITC will be within limits specified in the COLR at 70% RTP.	Once after each refueling prior to THERMAL POWER exceeding 70% RTP
SR 3.1.3.3 Verify that ITC will be within limits at EOC.	Once after each refueling prior to THERMAL POWER exceeding 70% RTP

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.4 Rod Group Alignment Limits.

LCO 3.1.4 All shutdown and control rods shall be OPERABLE.

AND

Individual actual rod positions shall be within 24 steps of their group step counter demand position when the demand position is between 30 and 215 steps, or within 36 steps of their group step counter demand position when the demand position  $\leq 30$  steps, or  $\geq 215$  steps.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more rod(s) inoperable.	A.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2 Be in MODE 3.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.	B.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	B.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	B.2.1.1 Perform SR 3.2.1.1 and SR 3.2.1.2.	8 hours
	<u>AND</u>	
	B.2.1.2 Perform SR 3.2.2.1.	8 hours
	<u>OR</u>	
	B.2.2 Reduce High Neutron Flux Trip Setpoint to $\leq 85\%$ RTP.	8 hours
	<u>AND</u>	
	B.3 Verify SDM is within the limits provided in the COLR.	Once per 12 hours
	<u>AND</u>	

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.4 Re-evaluate safety analyses and determine the THERMAL POWER for which the results remain valid for duration of operation under these conditions.	30 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours
D. More than one rod not within alignment limit.	D.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	D.1.2 Initiate boration to restore required SDM to within limit.	1 hour
	<u>AND</u>	
	D.2 Be in MODE 3.	6 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.4.1 -----NOTE-----            If RPI differs by &gt; 12 steps from the group step counter demand position, enter LCO 3.1.7 to determine RPI OPERABILITY.            -----            Verify individual rod positions within alignment limit.</p>	12 hours
<p>SR 3.1.4.2 Verify rod freedom of movement (trippability) by moving each rod, not fully inserted in the core, <math>\geq 10</math> steps in either direction.</p>	92 days
<p>SR 3.1.4.3 Verify rod drop time of each rod, from the fully withdrawn position, is <math>\leq 1.8</math> seconds from the beginning of decay of stationary gripper coil voltage to dashpot entry, with:</p> <p>a. <math>T_{avg} \geq 500^{\circ}\text{F}</math>; and</p> <p>b. Both reactor coolant pumps operating.</p>	Prior to reactor criticality after each removal of the reactor head

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each shutdown bank shall be within insertion limits specified in the COLR.

-----NOTE-----  
This LCO is not applicable while performing SR 3.1.4.2.  
-----

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits.	A.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2 Restore shutdown banks to within limits.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify each shutdown bank is within the limits specified in the COLR.	12 hours

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.6 Control Bank Insertion Limits

LCO 3.1.6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

-----NOTE-----  
This LCO is not applicable while performing SR 3.1.4.2.  
-----

APPLICABILITY: MODE 1,  
MODE 2 with  $k_{\text{eff}} \geq 1.0$ .

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	A.2 Restore control bank(s) to within limits.	2 hours



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Control bank sequence or overlap limits not met.	B.1.1 Verify SDM is within the limits provided in the COLR.	1 hour
	<u>OR</u>	
	B.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	B.2 Restore control bank sequence and overlap to within limits.	2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 2 with $k_{eff} < 1.0$ .	6 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.1.6.1 Verify estimated critical control bank position is within the limits specified in the COLR.	Prior to achieving criticality
SR 3.1.6.2 Verify each control bank insertion is within the limits specified in the COLR.	12 hours
SR 3.1.6.3 Verify sequence and overlap limits specified in the COLR are met for control banks not fully withdrawn from the core.	12 hours

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.7 Rod Position Indication

LCO 3.1.7 The Rod Position Indication (RPI) System and demand position indication shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each inoperable rod position indicator and each demand position indicator.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RPI per group inoperable for one or more groups.	A.1 Verify the position of the rod(s) with inoperable position indicators by using movable incore detectors.	Once per 8 hours
	<u>OR</u> A.2 Reduce THERMAL POWER to $\leq 50\%$ RTP.	8 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. More than one RPI per group inoperable for one or more groups.	B.1 Monitor and record demand position indication for rods with inoperable RPI.  <u>AND</u>	Once per hour
	B.2 Monitor and record reactor coolant system average temperature.  <u>AND</u>	Once per hour
	B.3 Verify, using movable incore detectors, position of rods with inoperable RPIs which have been moved in excess of 24 steps in one direction since last determination of their position.  <u>AND</u>	Once per 4 hours
	B.4 Restore inoperable RPIs to OPERABLE status such that a maximum of one RPI per group is inoperable.	24 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Indication for one demand position per bank inoperable for one or more banks.	C.1.1 Verify by administrative means all RPIs for the affected bank(s) are OPERABLE.	Once per 8 hours
	<u>AND</u>	
	C.1.2 Verify the rod position indication of the most withdrawn rod and the least withdrawn rod of the affected bank(s) are $\leq 12$ steps apart.	Once per 8 hours
	<u>OR</u>	
	C.2 Reduce THERMAL POWER to $\leq 50\%$ RTP.	8 hours
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.1.7.1 Verify each RPI agrees within 12 steps of the group demand position between 30 and 215 steps, or within 24 steps of the group demand position when the demand position is $\geq 215$ steps or $\leq 30$ steps.	Once prior to criticality after each removal of the reactor head

### 3.1 REACTIVITY CONTROL SYSTEMS

#### 3.1.8 PHYSICS TESTS Exceptions - MODE 2

LCO 3.1.8 During the performance of PHYSICS TESTS, the requirements of

LCO 3.1.3, "Isothermal Temperature Coefficient (ITC)";  
LCO 3.1.4, "Rod Group Alignment Limits";  
LCO 3.1.5, "Shutdown Bank Insertion Limits";  
LCO 3.1.6, "Control Bank Insertion Limits"; and  
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended and the number of required channels for LCO 3.3.1, "RTS Instrumentation," Functions 2, 3, 6, 7, and 16.e may be reduced to "3" required channels, provided:

- a. RCS lowest loop average temperature is  $\geq 535^{\circ}\text{F}$ ;
- b. SDM is within the limits provided in the COLR; and
- c. THERMAL POWER is  $\leq 5\%$  RTP.

APPLICABILITY: During PHYSICS TESTS initiated in MODE 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes
	<u>AND</u> A.2 Suspend PHYSICS TESTS exceptions.	1 hour

Prairie Island  
Units 1 and 2

3.1.8-1

Unit 1 – Amendment No. 158  
Unit 2 – Amendment No. 149

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. THERMAL POWER not within limit.	B.1 Open reactor trip breakers.	Immediately
C. RCS lowest loop average temperature not within limit.	C.1 Restore RCS lowest loop average temperature to within limit.	15 minutes
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.8.1 Perform a CHANNEL OPERATIONAL TEST on power range and intermediate range channels per SR 3.3.1.7, SR 3.3.1.8, and Table 3.3.1-1.	Prior to initiation of PHYSICS TESTS
SR 3.1.8.2 Verify the RCS lowest loop average temperature is $\geq 535^{\circ}\text{F}$ .	30 minutes



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.1.8.3 Verify THERMAL POWER is $\leq$ 5% RTP.	30 minutes
SR 3.1.8.4 Verify SDM is within the limits provided in the COLR.	24 hours

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.1 Heat Flux Hot Channel Factor (F<sub>q</sub>(Z))

LCO 3.2.1 F<sub>q</sub>(Z), as approximated by F<sub>q</sub><sup>c</sup>(Z) and F<sub>q</sub><sup>w</sup>(Z), shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE-----  Required Action A.4  shall be completed  whenever this Condition  is entered.  -----</p> <p>F<sub>q</sub><sup>c</sup>(Z) not within limit.</p>	<p>A.1 Reduce THERMAL  POWER ≥ 1% RTP for each  1% F<sub>q</sub><sup>c</sup>(Z) exceeds limit.</p> <p><u>AND</u></p> <p>A.2 Reduce Power Range  Neutron Flux -High trip  setpoints ≥ 1% for each  1% F<sub>q</sub><sup>c</sup>(Z) exceeds limit.</p> <p><u>AND</u></p> <p>A.3 Reduce Overpower ΔT trip  setpoints ≥ 1% for each 1%  F<sub>q</sub><sup>c</sup>(Z) exceeds limit.</p> <p><u>AND</u></p>	<p>15 minutes after  each F<sub>q</sub><sup>c</sup>(Z)  determination</p> <p>72 hours after  each F<sub>q</sub><sup>c</sup>(Z)  determination</p> <p>72 hours after  each F<sub>q</sub><sup>c</sup>(Z)  determination</p>

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.4 Perform SR 3.2.1.1 and SR 3.2.1.2.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
<p>B. -----NOTE-----  Required Action B.4 shall be completed whenever this Condition is entered.  -----</p> <p>F<sub>Q</sub><sup>w</sup>(Z) not within limits.</p>	<p>B.1 Reduce THERMAL POWER <math>\geq 1\%</math> RTP for each <math>1\% F_Q^w(Z)</math> exceeds limit.</p> <p><u>AND</u></p> <p>B.2 Reduce Power Range Neutron Flux-High trip setpoints <math>\geq 1\%</math> for each <math>1\% F_Q^w(Z)</math> exceeds limit.</p> <p><u>AND</u></p> <p>B.3 Reduce Overpower <math>\Delta T</math> trip setpoints <math>\geq 1\%</math> for each <math>1\% F_Q^w(Z)</math> exceeds limit.</p> <p><u>AND</u></p> <p>B.4 Perform SR 3.2.1.1 and SR 3.2.1.2.</p>	<p>4 hours after each F<sub>Q</sub><sup>w</sup>(Z) determination</p> <p>72 hours after each F<sub>Q</sub><sup>w</sup>(Z) determination</p> <p>72 hours after each F<sub>Q</sub><sup>w</sup>(Z) determination</p> <p>Prior to increasing THERMAL POWER above the limit of Required Action B.1</p>

## ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 2.	6 hours

## SURVEILLANCE REQUIREMENTS

## -----NOTE-----

During power escalation at the beginning of each cycle, THERMAL POWER may be increased until an equilibrium power level has been achieved, at which a power distribution map is obtained.

SURVEILLANCE	FREQUENCY
SR 3.2.1.1 Verify $F_q^c(Z)$ is within limit.	<p>Once after each refueling prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>Once within 12 hours after achieving equilibrium conditions after exceeding, by <math>\geq 10\%</math> RTP, the THERMAL POWER at which <math>F_q^c(Z)</math> was last verified</p> <p><u>AND</u></p> <p>31 effective full power days (EFPD) thereafter</p>

## SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.2.1.2 -----NOTE-----</p> <p>If measurements indicate that the</p> <p style="text-align: center;">maximum over <math>z \left[ \frac{F_Q^c(Z)}{K(Z)} \right]</math></p> <p>has increased since the previous evaluation of <math>F_Q^c(Z)</math>:</p> <ol style="list-style-type: none"> <li>a. Increase <math>F_Q^w(Z)</math> by an appropriate factor specified in the COLR and reverify <math>F_Q^w(Z)</math> is within limits; or</li> <li>b. Repeat SR 3.2.1.2 once per 7 EFPD until either a. above is met or two successive flux maps indicate that the</li> </ol> <p style="text-align: center;">maximum over <math>z \left[ \frac{F_Q^c(Z)}{K(Z)} \right]</math></p> <p>has not increased.</p> <p>-----</p> <p>Verify <math>F_Q^w(Z)</math> is within limit.</p>	<p>Once within 12 hours after achieving equilibrium conditions after each refueling after THERMAL POWER exceeds 75% RTP</p> <p><u>AND</u></p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.1.2 (continued)	Once within 12 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which F <sub>o</sub> <sup>w</sup> (Z) was last verified  <u>AND</u>  31 EFPD thereafter

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.2 Nuclear Enthalpy Rise Hot Channel Factor ( $F_{\Delta H}^N$ )

LCO 3.2.2  $F_{\Delta H}^N$  shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Required Actions A.2 and A.4 must be completed whenever Condition A is entered. ----- $F_{\Delta H}^N$ not within limit.	A.1 Reduce THERMAL POWER to < 50% RTP.  <u>AND</u>	4 hours
	A.2 Perform SR 3.2.2.1.  <u>AND</u>	24 hours
	A.3 Reduce Power Range Neutron Flux-High trip setpoints to $\leq$ 55% RTP.  <u>AND</u>	72 hours



## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.4 -----NOTE-----  THERMAL POWER does not have to be reduced to comply with this Required Action.  -----</p> <p>Perform SR 3.2.2.1.</p>	<p>Prior to THERMAL POWER exceeding 50% RTP</p> <p><u>AND</u></p> <p>Prior to THERMAL POWER exceeding 75% RTP</p> <p><u>AND</u></p> <p>24 hours after THERMAL POWER reaching <math>\geq 95\%</math> RTP</p>
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

# SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.2.1 Verify $F_{\Delta H}^N$ is within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP  <u>AND</u>  31 EFPD thereafter

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.3 AXIAL FLUX DIFFERENCE (AFD)

LCO 3.2.3 The AFD:

- a. Shall be maintained within the target band about the target flux difference. The target band is specified in the COLR.
- b. May deviate outside the target band with THERMAL POWER < 90% RTP but  $\geq$  50% RTP, provided AFD is within the acceptable operation limits and cumulative penalty deviation time is  $\leq$  1 hour during the previous 24 hours. The acceptable operation limits are specified in the COLR.
- c. May deviate outside the target band with THERMAL POWER < 50% RTP.

#### -----NOTES-----

1. The AFD shall be considered outside the target band when two or more OPERABLE excore channels indicate AFD to be outside the target band.
2. With THERMAL POWER  $\geq$  50% RTP, penalty deviation time shall be accumulated on the basis of a 1 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.
3. With THERMAL POWER < 50% RTP and >15% RTP, penalty deviation time shall be accumulated on the basis of a 0.5 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.
4. A total of 16 hours of operation may be accumulated with AFD outside the target band without penalty deviation time during surveillance of power range channels in accordance with SR 3.3.1.6, provided AFD is maintained within acceptable operation limits.

APPLICABILITY: MODE 1 with THERMAL POWER > 15% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. THERMAL POWER <math>\geq</math> 90% RTP.</p> <p><u>AND</u></p> <p>AFD not within the target band.</p>	<p>A.1 Restore AFD to within target band.</p>	<p>15 minutes</p>
<p>B. Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Reduce THERMAL POWER to &lt; 90% RTP.</p>	<p>15 minutes</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. -----NOTE----- Required Action C.1 must be completed whenever Condition C is entered. -----</p> <p>THERMAL POWER &lt; 90% and <math>\geq</math> 50% RTP with cumulative penalty deviation time &gt; 1 hour during the previous 24 hours.</p> <p><u>OR</u></p> <p>THERMAL POWER &lt; 90% and <math>\geq</math> 50% RTP with AFD not within the acceptable operation limits.</p>	<p>C.1 Reduce THERMAL POWER to &lt; 50% RTP.</p>	<p>30 minutes</p>
<p>D. Required Action and associated Completion Time for Condition C not met.</p>	<p>D.1 Reduce THERMAL POWER to &lt; 15% RTP.</p>	<p>9 hours</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.2.3.1 Verify AFD is within limits for each OPERABLE excore channel.	7 days
<p>SR 3.2.3.2 -----NOTE-----  The initial target flux difference after each refueling may be determined from design predictions.  -----  Determine, by measurement, and update target flux difference.</p>	<p>Once within 31 EFPD after each refueling</p> <p><u>AND</u></p> <p>31 EFPD thereafter</p>

## 3.2 POWER DISTRIBUTION LIMITS

### 3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be  $\leq 1.02$ .

APPLICABILITY: MODE 1 with THERMAL POWER  $> 50\%$  RTP.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER $\geq 3\%$ from RTP for each 1% of QPTR $> 1.00$ .	2 hours after each QPTR determination
	<p><u>AND</u></p> <p>A.2 Perform SR 3.2.4.1.</p> <p><u>AND</u></p>	Once per 12 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.3 Perform SR 3.2.1.1, SR 3.2.1.2 and SR 3.2.2.1.	24 hours after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1
	<u>AND</u>	<u>AND</u>  Once per 7 days thereafter.
	A.4 Re-evaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	<u>AND</u>	



ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.5 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Perform Required Action A.5 only after Required Action A.4 is completed.</li> <li>2. Required Action A.6 shall be completed when Required Action A.5 is performed.</li> </ol> <p>-----</p> <p>Normalize excore detectors to restore QPTR to within limits.</p> <p><u>AND</u></p>	<p>Prior to increasing THERMAL POWER above the limit of Required Action A.1</p>

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	<p>A.6 -----NOTE----- Perform Required Action A.6 only after Required Action A.5 is completed. -----</p> <p>Perform SR 3.2.1.1, SR 3.2.1.2 and SR 3.2.2.1.</p>	<p>Within 24 hours after achieving equilibrium conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1</p>
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $\leq 50\%$ RTP.	4 hours

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER <math>\leq</math> 85% RTP, the remaining three power range channels can be used for calculating QPTR.</li> <li>2. SR 3.2.4.2 may be performed in lieu of this Surveillance.</li> </ol> <p>-----</p> <p>Verify QPTR is within limit by calculation.</p>	<p>7 days</p>
<p>SR 3.2.4.2 -----NOTE-----</p> <p>Not required to be performed until 12 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER <math>&gt;</math> 85% RTP.</p> <p>-----</p> <p>Verify QPTR is within limit using the movable incore detectors or thermocouples.</p>	<p>12 hours</p>

### 3.3 INSTRUMENTATION

#### 3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1 Restore channel to OPERABLE status.	48 hours
	<u>OR</u> B.2 Be in MODE 3.	54 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	C.2.1 Initiate action to fully insert all rods.	48 hours
	<u>AND</u>	
	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
D. One Power Range Neutron Flux channel inoperable.	-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels. -----	
	D.1.1 Place channel in trip.  <u>AND</u>	6 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	<p>D.1.2 -----NOTE----- Only required to be performed when THERMAL POWER is &gt; 85% RTP and the Power Range Neutron Flux input to QPTR is inoperable. -----</p> <p>Perform SR 3.2.4.2.</p> <p><u>OR</u></p> <p>D.2 Be in MODE 3.</p>	<p>Once per 12 hours</p> <p>12 hours</p>
E. One channel inoperable.	<p>-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----</p> <p>E.1 Place channel in trip.</p> <p><u>OR</u></p> <p>E.2 Be in MODE 3.</p>	<p>6 hours</p> <p>12 hours</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One Intermediate Range Neutron Flux channel inoperable.	F.1 Reduce THERMAL POWER to < P-6.	24 hours
	<u>OR</u> F.2 Increase THERMAL POWER to > P-10.	24 hours
G. Two Intermediate Range Neutron Flux channels inoperable.	G.1 -----NOTE----- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ----- Suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u> G.2 Reduce THERMAL POWER to < P-6.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One Source Range Neutron Flux channel inoperable.	<p>H.1 -----NOTE-----  Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.  -----</p> <p>Suspend operations involving positive reactivity additions.</p>	Immediately
I. Two Source Range Neutron Flux channels inoperable.	I.1 Open Reactor Trip Breakers (RTBs).	Immediately
J. One Source Range Neutron Flux channel inoperable.	<p>J.1 Restore channel to OPERABLE status.</p> <p><u>OR</u></p> <p>J.2.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p>J.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>48 hours</p> <p>48 hours</p> <p>49 hours</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One channel inoperable.	<p>-----NOTE-----</p> <p>The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.</p> <p>-----</p>	
	K.1 Place channel in trip.	6 hours
	<p><u>OR</u></p> <p>K.2 Reduce THERMAL POWER to &lt; P-7 and P-8.</p>	12 hours
L. One or both channel(s) inoperable on one bus.	<p>-----NOTE-----</p> <p>One inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.</p> <p>-----</p>	
	L.1 Place channel(s) in trip.	6 hours
	<p><u>OR</u></p> <p>L.2 Reduce THERMAL POWER to &lt; P-7 and P-8.</p>	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
M. One Reactor Coolant Pump Breaker Open channel inoperable.	M.1 Restore channel to OPERABLE status.	48 hours
	<u>OR</u> M.2 Reduce THERMAL POWER to < P-7 and P-8.	54 hours
N. One Turbine Trip channel inoperable	-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channel(s). -----	
	N.1 Place channel in trip.	6 hours
	<u>OR</u> N.2 Reduce THERMAL POWER to < P-9.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One train inoperable.	-----NOTE----- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. -----	
	O.1 Restore train to OPERABLE status.  <u>OR</u>	6 hours
	O.2 Be in MODE 3.	12 hours
P. One RTB train inoperable.	-----NOTES----- 1. One train may be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE.  2. One RTB may be bypassed for up to 4 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. -----	
	P.1 Restore train to OPERABLE status.  <u>OR</u>	1 hour
	P.2 Be in MODE 3.	7 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. One or more channels inoperable.	Q.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> Q.2 Be in MODE 3.	7 hours
R. One or more channels inoperable.	R.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u> R.2 Be in MODE 2.	7 hours
S. One trip mechanism inoperable for one RTB.	S.1 Restore inoperable trip mechanism to OPERABLE status.	48 hours
	<u>OR</u> S.2 Be in MODE 3.	54 hours

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2 -----NOTES----- 1. Adjust NIS channel if absolute difference is > 2%.  2. Not required to be performed until 12 hours after THERMAL POWER is $\geq$ 15% RTP. -----  Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	24 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.3 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Adjust NIS channel if absolute difference is <math>\geq 2\%</math>.</li> <li>2. Not required to be performed until 72 hours after THERMAL POWER is <math>\geq 15\%</math> RTP.</li> </ol> <p>-----</p> <p>Compare results of the incore detector measurements to NIS AFD.</p>	<p>31 effective full power days (EFPD)</p>
<p>SR 3.3.1.4 -----NOTE-----</p> <p>This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service.</p> <p>-----</p> <p>Perform TADOT.</p>	<p>31 days on a STAGGERED TEST BASIS</p>
<p>SR 3.3.1.5 Perform ACTUATION LOGIC TEST.</p>	<p>31 days on a STAGGERED TEST BASIS</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.6 -----NOTE-----            Not required to be performed until 24 hours after            THERMAL POWER is <math>\geq</math> 75% RTP.            -----</p> <p>Calibrate excore channels to agree with incore            detector measurements.</p>	<p>92 EFPD</p>
<p>SR 3.3.1.7 -----NOTE-----            Not required to be performed for source range            instrumentation prior to entering MODE 3 from            MODE 2 until 4 hours after entry into MODE 3.            -----</p> <p>Perform COT.</p>	<p>92 days</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</li> <li>2. Not required to be performed for intermediate and source range instrumentation prior to reactor startup following shutdown <math>\leq</math> 48 hours.</li> </ol> <p>-----</p> <p>Perform COT.</p>	<p>-----NOTE-----</p> <p>Only required when not performed within previous 92 days</p> <p>-----</p> <p>Prior to reactor startup</p> <p><u>AND</u></p> <p>Twelve hours after reducing power below P-10 for power and intermediate range instrumentation</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-6 for source range instrumentation</p> <p><u>AND</u></p> <p>Every 92 days thereafter</p>



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.9 -----NOTE----- Verification of setpoint is not required. -----  Perform TADOT.</p>	92 days
<p>SR 3.3.1.10 -----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -----  Perform CHANNEL CALIBRATION.</p>	24 months
<p>SR 3.3.1.11 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -----  Perform CHANNEL CALIBRATION.</p>	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.12 -----NOTE-----  This Surveillance shall include verification of  Reactor Coolant System resistance temperature  detector bypass loop flow rate.  -----</p> <p>Perform CHANNEL CALIBRATION.</p>	24 months
SR 3.3.1.13 Perform COT.	24 months
<p>SR 3.3.1.14 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	24 months
<p>SR 3.3.1.15 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	Prior to exceeding the P-9 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.16 -----NOTE-----  Neutron detectors are excluded from response time testing.  -----  Verify RTS RESPONSE TIME is within limits.</p>	<p>24 months</p>

Table 3.3.1-1 (page 1 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1, 2	2	B	SR 3.3.1.14	NA
	3(a), 4(a), 5(a)	2	C	SR 3.3.1.14	NA
2. Power Range Neutron Flux					
a. High	1, 2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 110% RTP
b. Low	1 <sup>(b)</sup> , 2	4	D	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ 40% RTP
3. Power Range Neutron Flux Rate					
a. High Positive Rate	1, 2	4	D	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 6% RTP with time constant ≥ 2 sec
b. High Negative Rate	1, 2	4	D	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ 8% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1 <sup>(b)</sup> , 2 <sup>(c)</sup>	2	F, G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 40% RTP

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlocks.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

Table 3.3.1-1 (page 2 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Source Range Neutron Flux	2(d)	2	H, I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	$< 1.0E6$ cps
	3(a), 4(a), 5(a)	2	I, J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	$\leq 1.0E6$ cps
6. Overtemperature $\Delta T$	1, 2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 1 (Page 3.3.1-23)
7. Overpower $\Delta T$	1, 2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.12 SR 3.3.1.16	Refer to Note 2 (Page 3.3.1-24)
8. Pressurizer Pressure					
a. Low	1(e)	4	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	$\geq 1760$ psig
b. High	1, 2	3	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	$\leq 2400$ psig

- (a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.  
(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.  
(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 3 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
9. Pressurizer Water Level - High	1(e)	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	< 90%
10. Reactor Coolant Flow - Low	1(f)	3 per loop	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	> 91%
11. Loss of Reactor Coolant Pump (RCP)					
a. RCP Breaker Open	1(f)	1 per RCP	M	SR 3.3.1.14	NA
b. Under- frequency 4 kV Buses 11 and 12 (21 and 22)	1(f)	2 per bus	L	SR 3.3.1.9 SR 3.3.1.10	> 58.2 Hz
12. Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	1(e)	2 per bus	L	SR 3.3.1.9 SR 3.3.1.10	≥ 76% rated bus voltage
13. Steam Generator (SG) Water Level - Low Low	1, 2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	> 11.3%

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(f) Above the P-8 (Power Range Neutron Flux) or P-7 (Low Power Reactor Trips Block) interlocks.

Table 3.3.1-1 (page 4 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Turbine Trip					
a. Low Autostop Oil Pressure	1(g)	3	N	SR 3.3.1.10 SR 3.3.1.15	> 45 psig
b. Turbine Stop Valve Closure	1(g)	2	N	SR 3.3.1.10 SR 3.3.1.15	Closed
15. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1, 2	2 trains	O	SR 3.3.1.14	NA

(g) Above the P-9 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
16. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d)	2	Q	SR 3.3.1.11 SR 3.3.1.13	$\geq 1.0\text{E-}10$ amp
b. Low Power Reactor Trips Block, P-7					
1. Power Range Neutron Flux	1	4	R	SR 3.3.1.11 SR 3.3.1.13	$\leq 12\%$ RTP
2. Turbine Impulse Pressure	1	2	R	SR 3.3.1.7 SR 3.3.1.10	$\leq 12\%$ Full Load
c. Power Range Neutron Flux, P-8	1	4	R	SR 3.3.1.11 SR 3.3.1.13	$\leq 11\%$ RTP
d. Power Range Neutron Flux, P-9	1	4	R	SR 3.3.1.11 SR 3.3.1.13	$\leq 12\%$ RTP
e. Power Range Neutron Flux, P-10	1, 2	4	Q	SR 3.3.1.11 SR 3.3.1.13	$\geq 9\%$ RTP
17. Reactor Trip Breakers <sup>(h)</sup> (RTBs)	1, 2	2 trains	P	SR 3.3.1.4	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA

- (a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.  
 (d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.  
 (h) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.



Table 3.3.1-1 (page 6 of 8)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
18. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1, 2	1 each per RTB	S	SR 3.3.1.4	NA
	3(a), 4(a), 5(a)	1 each per RTB	C	SR 3.3.1.4	NA
19. Automatic Trip Logic	1, 2	2 trains	O	SR 3.3.1.5	NA
	3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.5	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

Table 3.3.1-1 (page 7 of 8)  
Reactor Trip System Instrumentation

Note 1: Overtemperature  $\Delta T$

The Overtemperature  $\Delta T$  Function Allowable Value is defined by the following Trip Setpoint.

$$\Delta T \leq \Delta T_0 \left\{ K_1 - K_2 (T - T') \left[ \frac{(1 + \tau_1 s)}{(1 + \tau_2 s)} \right] + K_3 (P - P') - f(\Delta I) \right\}$$

Where:  $\Delta T$  is measured Reactor Coolant System (RCS)  $\Delta T$ , °F.

$\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.

$s$  is the Laplace transform operator,  $\text{sec}^{-1}$ .

$T$  is the measured RCS average temperature, °F.

$T'$  is the nominal  $T_{\text{avg}}$  at RTP, = 567.3 °F.

$P$  is the measured pressurizer pressure, psig

$P'$  is the nominal RCS operating pressure, = 2235 psig

$$K_1 \leq 1.11$$

$$K_2 = 0.009/^\circ\text{F}$$

$$K_3 = 0.000566/\text{psig}$$

$$\tau_1 = 30 \text{ sec}$$

$$\tau_2 = 4 \text{ sec}$$

$$f(\Delta I) = \begin{cases} -0.0150 \{12 + (q_t - q_b)\} & \text{when } q_t - q_b \leq -12\% \text{ RTP} \\ 0\% \text{ of RTP} & \text{when } -12\% \text{ RTP} < q_t - q_b \leq 9\% \text{ RTP} \\ 0.0250 \{(q_t - q_b) - 9\} & \text{when } q_t - q_b > 9\% \text{ RTP} \end{cases}$$

Where  $q_t$  and  $q_b$  are percent RTP in the upper and lower halves of the core, respectively, and  $q_t + q_b$  is the total THERMAL POWER in percent RTP.

Table 3.3.1-1 (page 8 of 8)  
Reactor Trip System Instrumentation

Note 2: Overpower  $\Delta T$

The Overpower  $\Delta T$  Function Allowable Value is defined by the following Trip Setpoint.

$$\Delta T \leq \Delta T_0 \left\{ K_4 - K_5 \frac{\tau_3 s T}{1 + \tau_3 s} - K_6 (T - T') - f(\Delta I) \right\}$$

Where:  $\Delta T$  is measured RCS  $\Delta T$ , °F.  
 $\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.  
 $s$  is the Laplace transform operator,  $\text{sec}^{-1}$ .  
 $T$  is the measured RCS average temperature, °F.  
 $T'$  is the nominal  $T_{\text{avg}}$  at RTP, = 567.3 °F.

$$K_4 \leq 1.10$$

$$K_5 = 0.0275/^{\circ}\text{F for increasing } T_{\text{avg}} \\ = 0/^{\circ}\text{F for decreasing } T_{\text{avg}}$$

$$K_6 = 0.002/^{\circ}\text{F when } T > T' \\ = 0/^{\circ}\text{F when } T \leq T'$$

$$\tau_3 = 10 \text{ sec}$$

$$f(\Delta I) = \text{As defined in Note 1}$$

### 3.3 INSTRUMENTATION

#### 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	B.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	B.2.2 Be in MODE 5.	84 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	<p>-----NOTE----- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. -----</p>	
	C.1 Restore train to OPERABLE status.	6 hours
	<u>OR</u>	
	C.2.1 Be in MODE 3.	12 hours
D. One channel inoperable.	<u>AND</u>	
	C.2.2 Be in MODE 5.	42 hours
	-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----	
	D.1 Place channel in trip.	6 hours
	<u>OR</u>	
	D.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	D.2.2 Be in MODE 4.	18 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more Containment Pressure channel(s) inoperable.	-----NOTE----- One channel may be bypassed for up to 4 hours for surveillance testing. -----	
	E.1.1 Place inoperable channel(s) in trip.  <u>AND</u>	6 hours
	E.1.2 Verify one channel per pair OPERABLE.  <u>OR</u>	6 hours
	E.2.1 Be in MODE 3.  <u>AND</u>	12 hours
	E.2.2 Be in MODE 4.	18 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	F.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	F.2.2 Be in MODE 4.	60 hours
G. One train inoperable.	-----NOTE----- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. -----	
	G.1 Restore train to OPERABLE status.	6 hours
	<u>OR</u>	
	G.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	G.2.2 Be in MODE 4.	18 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One channel inoperable.	-----NOTE----- The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----	
	H.1 Place channel in trip.  <u>OR</u>	6 hours
	H.2 Be in MODE 3.	12 hours
I. One or both channel(s) inoperable on one bus.	-----NOTE----- One inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels. -----	
	I.1 Place channel(s) in trip.  <u>OR</u>	6 hours
	I.2 Be in MODE 3.	12 hours



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One train inoperable.	<p>-----NOTE----- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>J.1 Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) train made inoperable by ESFAS instrumentation.</p>	Immediately
K. One channel inoperable.	K.1 Enter applicable Condition(s) and Required Action(s) for Auxiliary Feedwater (AFW) pump made inoperable by ESFAS instrumentation.	Immediately

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2 Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.3 Perform COT.	92 days
SR 3.3.2.4 -----NOTE----- Verification of setpoint not required. ----- Perform TADOT.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.5 -----NOTE----- Verification of setpoint not required. -----</p> <p>Perform TADOT.</p>	<p>24 months on a STAGGERED TEST BASIS</p>
<p>SR 3.3.2.6 -----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>24 months</p>
<p>SR 3.3.2.7 Perform MASTER RELAY TEST.</p>	<p>24 months</p>
<p>SR 3.3.2.8 Perform SLAVE RELAY TEST.</p>	<p>24 months</p>

Table 3.3.2-1 (page 1 of 4)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.5	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA
c. High Containment Pressure	1, 2, 3	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\leq 4.0$ psig
d. Pressurizer Low Pressure	1, 2, 3(a)	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\geq 1760$ psig
e. Steam Line Low Pressure	1, 2, 3(a)	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\geq 500^{(b)}$ psig
2. Containment Spray					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.4	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA

(a) Pressurizer Pressure  $\geq 2000$  psig.

(b) Time constants used in the lead/lag controller are  $t_1 \geq 12$  seconds and  $t_2 \leq 2$  seconds.

Table 3.3.2-1 (page 2 of 4)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Containment Spray (continued)					
	c. High-High Containment Pressure	1, 2, 3	3 sets of 2	E	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 23 psig
3.	Containment Isolation					
	a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.4	NA
	b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA
	c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
4.	Steam Line Isolation					
	a. Manual Initiation	1, 2(c), 3(c)	1/loop	F	SR 3.3.2.4	NA
	b. Automatic Actuation Relay Logic	1, 2(c), 3(c)	2 trains	G	SR 3.3.2.2 SR 3.3.2.7	NA
	c. High-High Containment Pressure	1, 2(c), 3(c)	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 17 psig

(c) Except when both Main Steam Isolation Valves (MSIVs) are closed.

Table 3.3.2-1 (page 3 of 4)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation (continued)					
d. High Steam Flow	1, 2(c), 3(c)(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\leq 9.18E5$ lb/hr at 1005 psig
Coincident with Safety Injection  and	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
Coincident with Low-Low $T_{avg}$	1, 2(c), 3(c)(d)	4	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\geq 536^{\circ}\text{F}$
e. High High Steam Flow	1, 2(c), 3(c)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\leq 4.5E6$ lb/hr at 735 psig
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
5. Feedwater Isolation					
a. Automatic Actuation Relay Logic	1, 2(e), 3(e)	2 trains	G	SR 3.3.2.2 SR 3.3.2.7	NA
b. High- High Steam Generator (SG) Water Level	1, 2(e)	3 per SG	H	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	$\leq 90\%$

(c) Except when both MSIVs are closed.

(d) Reactor Coolant System (RCS)  $T_{avg} > 520^{\circ}\text{F}$

(e) Except when all Main Feedwater Regulation Valves (MFRVs) and MFRV bypass valves are closed and de-activated or isolated by a closed manual valve.

Table 3.3.2-1 (page 4 of 4)  
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Feedwater Isolation (continued)					
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
6. Auxiliary Feedwater					
a. Automatic Actuation Relay Logic	1, 2, 3	2 trains	J	SR 3.3.2.2	NA
b. Low-Low SG Water Level	1, 2, 3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 11.3%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Undervoltage on 4 kV Buses 11 and 12 (21 and 22) <sup>(f)</sup>	1, 2	2 per bus	I	SR 3.3.2.4 SR 3.3.2.6	≥ 76% rated bus voltage
e. Trip of both Main Feedwater Pumps	1, 2 <sup>(g)</sup>	2 per pump	K	SR 3.3.2.4	NA

(f) Start of Turbine Driven Pump only.

(g) This Function may be bypassed during alignment and operation of the AFW System for SG level control.

3.3 INSTRUMENTATION

3.3.3 Event Monitoring (EM) Instrumentation

LCO 3.3.3 The EM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

- NOTES-----
- 1. LCO 3.0.4 is not applicable.
  - 2. Separate Condition entry is allowed for each Function.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Not applicable to core exit temperature Function. -----  One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more required Core Exit Thermocouple (CET) channel(s) inoperable.</p> <p><u>AND</u></p> <p>At least 4 CET channels OPERABLE in the center region of the core.</p> <p><u>AND</u></p> <p>At least one CET channel OPERABLE in each quadrant of the outside core region.</p>	<p>B.1 Restore required CET channel(s) to OPERABLE status.</p>	<p>30 days</p>
<p>C. Required Action and associated Completion Time of Condition A or B not met.</p>	<p>C.1 Initiate action in accordance with Specification 5.6.8.</p>	<p>Immediately</p>
<p>D. -----NOTE----- Not applicable to hydrogen monitor or CET channels. -----</p> <p>One or more Functions with two required channels inoperable.</p>	<p>D.1 Restore one channel to OPERABLE status.</p>	<p>7 days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two hydrogen monitor channels inoperable.	E.1 Restore one hydrogen monitor channel to OPERABLE status.	72 hours
F. Three or more required CET channels inoperable in one or more quadrants.  <u>AND</u>  Less than four CETs OPERABLE in the center region of the core.	F.1 Restore required channels to OPERABLE status.	7 days
G. Three or more required CET channels inoperable in one or more quadrants.  <u>AND</u>  Less than one CET OPERABLE in each quadrant of the outside core region.	G.1 Restore required channels to OPERABLE status.	7 days
H. Required Action and associated Completion Time of Condition D, E, F or G not met.	H.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. As required by Required Action H.1 and referenced in Table 3.3.3-1.	I.1 Be in MODE 3.	6 hours
J. As required by Required Action H.1 and referenced in Table 3.3.3-1.	J.1 Initiate action in accordance with Specification 5.6.8.	Immediately

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
SR 3.3.3.1 and SR 3.3.3.3 apply to each EM instrumentation Function in Table 3.3.3-1 except Function 11. SR 3.3.3.1 and SR 3.3.3.2 apply to Function 11.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.3.1 Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.3.3 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	24 months

Table 3.3.3-1 (page 1 of 1)  
Event Monitoring Instrumentation

FUNCTION		REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION H.I
1.	Power Range Neutron Flux (Logarithmic Scale)	2	I
2.	Source Range Neutron Flux (Logarithmic Scale)	2	I
3.	Reactor Coolant System (RCS) Hot Leg Temperature	2	I
4.	RCS Cold Leg Temperature	2	I
5.	RCS Pressure (Wide Range)	2	I
6.	Reactor Vessel Water Level	2	J
7.	Containment Sump Water Level (Wide Range)	2	I
8.	Containment Pressure (Wide Range)	2	I
9.	Penetration Flow Path Automatic Containment Isolation Valve Position	2 per penetration flow path <sup>(a)(b)</sup>	I
10.	Containment Area Radiation (High Range)	2	J
11.	Hydrogen Monitors	2	I
12.	Pressurizer Level	2	I
13.	Steam Generator Water Level (Wide Range)	2 per steam generator	I
14.	Condensate Storage Tank Level	2	I
15.	Core Exit Temperature	4 per quadrant <sup>(c)</sup>	I
16.	Refueling Water Storage Tank Level	2	I

- (a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.
- (b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.
- (c) A channel consists of one core exit thermocouple (CET).

### 3.3 INSTRUMENTATION

#### 3.3.4 4 kV Safeguards Bus Voltage Instrumentation

LCO 3.3.4 The following 4 kV safeguards bus voltage instrumentation Functions shall be OPERABLE:

- a. Four channels per bus of the undervoltage Function;
- b. Four channels per bus of the degraded voltage Function; and
- c. One automatic load sequencer per bus.

APPLICABILITY: MODES 1, 2, 3, and 4,  
When associated Diesel Generator (DG) is required to be  
OPERABLE by LCO 3.8.2, "AC Sources-Shutdown."

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. -----NOTE----- Only applicable to Functions a and b. -----</p> <p>One or more Functions with one channel per bus inoperable.</p>	A.1 Place channel in bypass.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to Functions a and b. -----</p> <p>One or more Functions with two channels per bus inoperable.</p>	<p>B.1 Place one channel in bypass and place one channel in trip.</p>	6 hours
	<p><u>AND</u></p> <p>B.2 Verify all channels associated with redundant load sequencer are OPERABLE.</p>	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. -----NOTE----- Only applicable in MODE 1, 2, 3, or 4. -----</p> <p>Required Action and associated Completion Time of Condition A or B not met.</p> <p><u>OR</u></p> <p>Function a or b or both with three channels per bus inoperable.</p> <p><u>OR</u></p> <p>One required automatic load sequencer inoperable.</p>	<p>C.1 Perform SR 3.3.4.2 for OPERABLE automatic load sequencer.</p> <p><u>AND</u></p> <p>C.2 Establish offsite paths block loading capability for associated 4 kV safeguards bus.</p> <p><u>AND</u></p> <p>C.3 Verify offsite paths for associated 4kV safeguards bus OPERABLE.</p> <p><u>AND</u></p> <p>C.4 Declare required feature(s) supported by the affected inoperable DG inoperable when its required redundant feature(s) is inoperable.</p> <p><u>AND</u></p> <p>C.5 Restore automatic load sequencer to OPERABLE status.</p>	<p>6 hours</p> <p><u>AND</u></p> <p>Once per 24 hours thereafter</p> <p>8 hours</p> <p>8 hours</p> <p><u>AND</u></p> <p>Once per 8 hours thereafter</p> <p>4 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)</p> <p>7 days</p>



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.  <u>AND</u>  D.2 Be in MODE 5.	6 hours    36 hours
E. -----NOTE----- Only applicable in MODES 5 or 6. ----- Required Action and associated Completion Time of Condition A or B not met.  <u>OR</u>  Function a or b or both with three channels per bus inoperable.  <u>OR</u>  One required automatic load sequencer inoperable.	E.1 Enter applicable Condition(s) and Required Action(s) of LCO 3.8.2, "AC Sources – Shutdown" for the DG made inoperable from inoperable 4 kV safeguards bus voltage instrumentation.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.4.1 Perform COT on each undervoltage and degraded voltage channel.	31 days
SR 3.3.4.2 Perform ACTUATION LOGIC TEST on each automatic load sequencer.	31 days
SR 3.3.4.3 Perform CHANNEL CALIBRATION on undervoltage and degraded voltage channels with Allowable Value as follows: <ul style="list-style-type: none"> <li>a. Undervoltage Allowable Value <math>\geq 3016</math> V and <math>\leq 3224</math> V with an undervoltage time delay of <math>4 \pm 1.5</math> seconds.</li> <li>b. Degraded voltage Allowable Value <math>\geq 3944</math> V and <math>\leq 4002</math> V with a degraded voltage time delay of <math>8 \pm 0.5</math> seconds and degraded voltage DG start time delay of 7.5 to 63 seconds.</li> </ul>	24 months

### 3.3 INSTRUMENTATION

#### 3.3.5 Containment Ventilation Isolation Instrumentation

LCO 3.3.5 The Containment Ventilation Isolation instrumentation for each Function in Table 3.3.5-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.5-1.

#### ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	4 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable in MODE 1, 2, 3, or 4 when the Containment Inservice Purge System is not isolated. -----</p> <p>One or more Functions with one or more manual or automatic actuation trains inoperable.</p> <p><u>OR</u></p> <p>Two required radiation monitoring channels inoperable.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition A not met.</p>	<p>B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment inservice (low flow) purge valves made inoperable by isolation instrumentation.</p>	<p>Immediately</p>

## ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. -----NOTE----- Only applicable during movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge Systems are not isolated. -----	C.1 Place and maintain containment purge (high flow) and inservice (low flow) purge valves in closed position.	Immediately
	<u>OR</u>	
One or more Functions with one or more manual or automatic actuation trains inoperable.	C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge (high flow) and inservice (low flow) purge valves made inoperable by isolation instrumentation.	Immediately
<u>OR</u>		
Two required radiation monitoring channels inoperable.		
<u>OR</u>		
Required Action and associated Completion Time for Condition A not met.		

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.5-1 to determine which SRs apply for each Containment Ventilation Isolation Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.5.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.5.2 Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.5.3 Perform COT.	31 days
SR 3.3.5.4 Perform SLAVE RELAY TEST.	24 months
SR 3.3.5.5 -----NOTE----- Verification of setpoint is not required. -----  Perform TADOT.	24 months
SR 3.3.5.6 Perform CHANNEL CALIBRATION.	24 months

# Containment Ventilation Isolation Instrumentation

## 3.3.5

Table 3.3.5-1 (page 1 of 1)  
Containment Ventilation Isolation Instrumentation

FUNCTION		APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Manual Initiation	1 <sup>(a)</sup> , 2 <sup>(a)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> (b)	2	SR 3.3.5.5	NA
2.	Automatic Actuation Relay Logic	1 <sup>(a)</sup> , 2 <sup>(a)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> (b)	2 trains	SR 3.3.5.2 SR 3.3.5.4	NA
3.	High Radiation in Exhaust Air	1 <sup>(a)</sup> , 2 <sup>(a)</sup> , 3 <sup>(a)</sup> , 4 <sup>(a)</sup> (b)	2 (1 per train)	SR 3.3.5.1 SR 3.3.5.3 SR 3.3.5.6	(c)
4.	Manual Containment Isolation	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a., for initiation functions and requirements.			
5.	Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for initiation functions and requirements.			
6.	Manual Containment Spray	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 2.a., for initiation functions and requirements.			

(a) When the Containment Inservice Purge System is not isolated.

(b) During movement of irradiated fuel assemblies within containment when the Containment Purge or Inservice Purge System is not isolated.

(c) ≤ count rate corresponding to 500 mrem/year whole body and 3000 mrem/year skin due to noble gases at the site boundary.

3.3 INSTRUMENTATION

3.3.6 Control Room Special Ventilation System (CRSVS) Actuation Instrumentation

LCO 3.3.6 The CRSVS actuation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each Function.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel inoperable.	A.1 Place one CRSVS train in operation and close the opposite train outside air dampers.	7 days



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more Functions with two channels inoperable.	B.1 Enter applicable Conditions and Required Actions for two CRSVS trains made inoperable by inoperable CRSVS actuation instrumentation.	Immediately
	<u>OR</u> B.2 Place both trains in operation.	Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1 Be in MODE 3.	6 hours
	<u>AND</u> C.2 Be in MODE 5.	36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies.	D.1 Suspend movement of irradiated fuel assemblies.	Immediately

## SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.6-1 to determine which SRs apply for each CRSVS Actuation Function.  
-----

SURVEILLANCE	FREQUENCY
SR 3.3.6.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.2 Perform COT.	92 days
SR 3.3.6.3 -----NOTE----- Verification of setpoint is not required. ----- Perform TADOT.	24 months
SR 3.3.6.4 Perform CHANNEL CALIBRATION.	24 months

Table 3.3.6-1 (page 1 of 1)  
CRSVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Initiation	1, 2, 3, 4 (a)	2	SR 3.3.6.3	NA
2. Control Room Radiation - Atmosphere	1, 2, 3, 4 (a)	2	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.4	5 times background
3. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.			

(a) During movement of irradiated fuel assemblies.

### 3.3 INSTRUMENTATION

#### 3.3.7 Spent Fuel Pool Special Ventilation System (SFPSVS) Actuation Instrumentation

LCO 3.3.7 The SFPSVS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.7-1.

#### ACTIONS

-----NOTE-----  
LCO 3.0.3 is not applicable.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Place one SFPSVS train in operation.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two channels inoperable.	B.1.1 Place one SFPSVS train in operation.	Immediately
	<u>AND</u>	
	B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Spent Fuel Pool Special Ventilation System (SFPSVS)," for one train made inoperable by inoperable actuation instrumentation.	Immediately
	<u>OR</u>	
	B.2 Place both trains in operation.	Immediately
C. Required Action and associated Completion Time for Condition A or B not met during movement of irradiated fuel assemblies in the fuel pool enclosure.	C.1 Suspend movement of irradiated fuel assemblies in the fuel pool enclosure.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.3.7.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.7.2 Perform COT.	92 days
SR 3.3.7.3 Perform CHANNEL CALIBRATION.	24 months

Table 3.3.7-1 (page 1 of 1)  
SFPSVS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Fuel Pool Enclosure Radiation	1,2,3,4 (a)	1 per train	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3	(b)

- (a) During movement of irradiated fuel assemblies in the fuel pool enclosure.  
(b) This value provided by the ODCM.

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.1 RCS Pressure, Temperature, and Flow - Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

- a. Pressurizer pressure  $\geq$  the limit specified in the COLR;
- b. RCS average temperature  $\leq$  the limit specified in the COLR; and
- c. RCS total flow rate  $\geq$  the value specified in the COLR.

APPLICABILITY: MODE 1.

-----NOTE-----  
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp  $>$  5% RTP per minute; or
- b. THERMAL POWER step  $>$  10% RTP.

-----

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is greater than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.2	Verify RCS average temperature is less than or equal to the limit specified in the COLR.	12 hours
SR 3.4.1.3	<p>-----NOTE-----</p> <p>Required to be performed within 72 hours after <math>\geq 90\%</math> RTP.</p> <p>-----</p> <p>Verify RCS total flow rate is within the limit specified in the COLR.</p>	24 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature ( $T_{avg}$ ) shall be  $\geq 540^{\circ}\text{F}$ .

APPLICABILITY: MODE 1,  
MODE 2 with  $k_{eff} \geq 1.0$ .

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. $T_{avg}$ in one or more RCS loops not within limit.	A.1 Be in MODE 2 with $k_{eff} < 1.0$ .	30 minutes

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS $T_{avg}$ in each loop $\geq 540^{\circ}\text{F}$ .	12 hours



CONDITION	REQUIRED ACTION	COMPLETION TIME
C. -----NOTE----- Required Action C.2 shall be completed whenever this Condition is entered. -----  Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits.  <u>AND</u>  C.2 Determine RCS is acceptable for continued operation.	Immediately          Prior to entering MODE 4

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.3.1 -----NOTE-----</p> <p>Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing.</p> <p>-----</p> <p>Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the PTLR.</p>	<p>30 minutes</p>

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.4 RCS Loops - MODES 1 and 2

LCO 3.4.4 Two RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

#### SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify each RCS loop is in operation.	12 hours

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.5 RCS Loops - MODE 3

LCO 3.4.5 Two RCS loops shall be OPERABLE, and either:

- a. Two RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal; or
- b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

-----NOTE-----

Both reactor coolant pumps may be de-energized for  $\leq 12$  hours to perform preplanned work activities provided:

- a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
  - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
- 

APPLICABILITY: MODE 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RCS loop inoperable.	A.1 Restore inoperable RCS loop to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours
C. One RCS loop not in operation with Rod Control System capable of rod withdrawal.	C.1 Restore required RCS loop to operation.  <u>OR</u>  C.2 Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour          1 hour

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two RCS loops inoperable.  <u>OR</u>  Required RCS loop not in operation.	D.1 Place the Rod Control System in a condition incapable of rod withdrawal.	Immediately
	<u>AND</u>  D.2 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately
	<u>AND</u>  D.3 Initiate action to restore one RCS loop to OPERABLE status and operation.	Immediately



## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required RCS loops are in operation.	12 hours
SR 3.4.5.2	Verify required steam generator capable of removing decay heat.	12 hours
SR 3.4.5.3	<p>-----NOTE-----</p> <p>Not required to be performed until 24 hours after a required pump is not in operation.</p> <p>-----</p> <p>Verify correct breaker alignment and indicated power are available to each required pump.</p>	7 days

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.6 RCS Loops - MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

-----NOTES-----

1. All reactor coolant pumps (RCPs) and RHR pumps may be de-energized for  $\leq 1$  hour per 8 hour period provided:
  - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
  - b. Core outlet temperature is maintained at least 10°F below saturation temperature.
2. No RCP shall be started with any RCS cold leg temperature  $\leq$  the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR unless:
  - a. The secondary side water temperature of each steam generator (SG) is  $\leq 50^\circ\text{F}$  above each of the RCS cold leg temperatures; or
  - b. There is a steam or gas bubble in the pressurizer.

APPLICABILITY: MODE 4.

## ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required loop inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status.	Immediately
	<p><u>AND</u></p> <p>A.2 -----NOTE----- Only required if RHR loop is OPERABLE. -----</p> <p>Be in MODE 5.</p>	24 hours
B. Both loops inoperable.  <u>OR</u>  Required loop not in operation.	B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately
	<p><u>AND</u></p> <p>B.2 Initiate action to restore one loop to OPERABLE status and operation.</p>	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify required SG capable of removing decay heat.	12 hours
SR 3.4.6.3	<p>-----NOTE-----            Not required to be performed until 24 hours after a required pump is not in operation.            -----</p> <p>Verify correct breaker alignment and indicated power are available to each required pump.</p>	7 days

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

- a. One additional RHR loop shall be OPERABLE; or
- b. One steam generator (SG) shall be capable of removing decay heat.

-----NOTES-----

1. The RHR pump of the loop in operation may be de-energized for  $\leq 1$  hour per 8 hour period provided:
  - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1; and
  - b. Core outlet temperature is maintained at least  $10^{\circ}\text{F}$  below saturation temperature.
2. One required RHR loop may be inoperable for  $\leq 2$  hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
3. No reactor coolant pump shall be started with one or more RCS cold leg temperatures  $\leq$  the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR unless:
  - a. The secondary side water temperature of each SG is  $\leq 50^{\circ}\text{F}$  above each of the RCS cold leg temperatures; or
  - b. There is a steam or gas bubble in the pressurizer.
4. Both RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One required RHR loop inoperable.</p> <p><u>AND</u></p> <p>One RHR loop OPERABLE.</p>	A.1 Initiate action to restore a second RHR loop to OPERABLE status.	Immediately
	<p><u>OR</u></p> <p>A.2 Initiate action to restore required SG capable to remove decay heat.</p>	Immediately
<p>B. One or more SGs not capable of decay heat removal.</p> <p><u>AND</u></p> <p>One RHR loop OPERABLE.</p>	B.1 Initiate action to restore a second RHR loop to OPERABLE status.	Immediately
	<p><u>OR</u></p> <p>B.2 Initiate action to restore a required SG capable to remove decay heat.</p>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. No required RHR loops OPERABLE.  <u>OR</u>  Required RHR loop not in operation.	C.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.	Immediately
	<u>AND</u>  C.2 Initiate action to restore one RHR loop to OPERABLE status and operation.	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.7.2	Verify required SG capable of removing decay heat.	12 hours
SR 3.4.7.3	<p>-----NOTE-----            Not required to be performed until 24 hours after            a required pump is not in operation.            -----</p> <p>Verify correct breaker alignment and indicated            power are available to each required RHR pump.</p>	7 days



### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.8 RCS Loops - MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

-----NOTES-----

1. All RHR pumps may be de-energized for  $\leq 1$  hour per 8 hour period provided:
    - a. No operations are permitted that would cause introduction into the RCS, coolant with boron concentration less than required to meet the SDM of LCO 3.1.1;
    - b. The core outlet temperature is maintained  $> 10^{\circ}\text{F}$  below saturation temperature; and
    - c. No draining operations to further reduce the RCS water volume are permitted.
  2. One RHR loop may be inoperable for  $\leq 2$  hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
- 

APPLICABILITY: MODE 5 with RCS loops not filled.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. No required RHR loop OPERABLE.</p> <p><u>OR</u></p> <p>Required RHR loop not in operation.</p>	<p>B.1 Suspend operations that would cause introduction into the RCS, coolant with boron concentration less than required to meet SDM of LCO 3.1.1.</p> <p><u>AND</u></p> <p>-----NOTE----- A Safety Injection pump may be run as required to maintain adequate core cooling and RCS inventory. -----</p>	Immediately
	<p>B.2 Initiate action to restore one RHR loop to OPERABLE status and operation.</p>	Immediately

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify required RHR loop is in operation.	12 hours
SR 3.4.8.2	<p>-----NOTE-----</p> <p>Not required to be performed until 24 hours after a required pump is not in operation.</p> <p>-----</p> <p>Verify correct breaker alignment and indicated power are available to each required RHR pump.</p>	7 days

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

- a. Pressurizer water level  $\leq 90\%$ ; and
- b. Two groups of pressurizer heaters OPERABLE with the capacity of each group  $\geq 100$  kW and capable of being powered from an emergency power supply.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Fully insert all rods.	6 hours
	<u>AND</u>	
	A.3 Place Rod Control System in a condition incapable of rod withdrawal.	6 hours
	<u>AND</u>	
	A.4 Be in MODE 4.	12 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One group of pressurizer heaters inoperable.	B.1 Restore group of pressurizer heaters to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3. <u>AND</u>	6 hours
	C.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is $\leq 90\%$ .	12 hours
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is $\geq 100$ kW.	24 months
SR 3.4.9.3	Verify required pressurizer heaters are capable of being powered from an emergency power supply.	24 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Two pressurizer safety valves shall be OPERABLE with lift settings  $\geq 2410$  psig and  $\leq 2560$  psig.

APPLICABILITY: MODES 1, 2, and 3,  
MODE 4 with all RCS cold leg temperatures  $>$  the Over Pressure Protection System (OPPS) enable temperature specified in the PTLR.

-----NOTE-----  
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 36 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.  
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#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
<u>OR</u>	<u>AND</u>	
Both pressurizer safety valves inoperable.	B.2 Be in MODE 4 with any RCS cold leg temperature $\leq$ the OPPS enable temperature specified in the PTLR.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.10.1      Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be within $\pm 1\%$ (2460 to 2510 psig).	In accordance with the Inservice Testing Program

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

#### ACTIONS

- NOTES-----
1. Separate Condition entry is allowed for each PORV and each block valve.
  2. LCO 3.0.4 is not applicable.
- 

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both PORVs inoperable and capable of being manually cycled.	A.1 Close and maintain power to associated block valve(s).	1 hour



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One PORV inoperable and not capable of being manually cycled.	B.1 Close associated block valve.	1 hour
	<u>AND</u>	
	B.2 Remove power from associated block valve.	1 hour
	<u>AND</u>	
	B.3 Restore PORV to OPERABLE status.	72 hours
C. One block valve inoperable.	-----NOTE----- Required Actions C.1 and C.2 do not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2 -----	
	C.1 Place associated PORV in manual control.	1 hour
	<u>AND</u>	
	C.2 Restore block valve to OPERABLE status.	72 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3.  <u>AND</u>	6 hours
	D.2 Be in MODE 4.	12 hours
E. Both PORVs inoperable and not capable of being manually cycled.	E.1 Close associated block valves.  <u>AND</u>	1 hour
	E.2 Remove power from associated block valves.  <u>AND</u>	1 hour
	E.3 Be in MODE 3.  <u>AND</u>	6 hours
	E.4 Be in MODE 4.	12 hours
F. Both block valves inoperable.	-----NOTE----- Required Action F.1 does not apply when block valve is inoperable solely as a result of complying with Required Actions B.2 or E.2 -----	
	F.1 Restore one block valve to OPERABLE status.	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 3.	6 hours
	<u>AND</u> G.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.11.1 -----NOTES-----</p> <p>1. Not required to be performed with block valve closed in accordance with the Required Actions of this LCO.</p> <p>2. Only required to be performed in MODES 1 and 2.</p> <p>-----</p> <p>Perform a complete cycle of each block valve.</p>	92 days
<p>SR 3.4.11.2 -----NOTE-----</p> <p>Only required to be performed in MODES 1 and 2.</p> <p>-----</p> <p>Perform a complete cycle of each PORV.</p>	24 months

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.12 Low Temperature Overpressure Protection (LTOP) –Reactor Coolant System Cold Leg Temperature (RCSCLT) > Safety Injection (SI) Pump Disable Temperature

LCO 3.4.12 LTOP shall be provided with:

- a. A maximum of one SI pump capable of injecting into the RCS;
- b. The emergency core cooling system (ECCS) accumulators isolated;
- c. An OPERABLE Over Pressure Protection System (OPPS) with lift setting within the limits specified in the PTLR; and
- d. Two OPERABLE pressurizer power operated relief valves (PORVs).

#### -----NOTES-----

1. Both SI pumps may be run for  $\leq 1$  hour while conducting SI system testing providing there is a steam or gas bubble in the pressurizer and at least one isolation valve between the SI pump and the RCS is shut.
2. ECCS accumulator may be unisolated when accumulator pressure is less than the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is  $\leq$  the OPPS enable temperature specified in the PTLR and  $>$  the SI pump disable temperature specified in the PTLR.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Two SI pumps capable of injecting into the RCS.	A.1 Initiate action to assure a maximum of one SI pump is capable of injecting into the RCS.	Immediately
B. An ECCS accumulator not isolated when the ECCS accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	B.1 Isolate affected ECCS accumulator.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	<p>C.1 Increase RCS cold leg temperature to &gt; the OPPS enable temperature specified in the PTLR.</p> <p><u>OR</u></p> <p>C.2 Depressurize affected ECCS accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.</p>	<p>12 hours</p> <p>12 hours</p>
D. One required PORV inoperable.	D.1 Restore required PORV to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two PORVs inoperable.	E.1 Be in MODE 5.	8 hours
<u>OR</u>	<u>AND</u>	
Required Action and associated Completion Time of Condition A, C, or D not met.	E.2 Depressurize RCS and establish RCS vent of $\geq 3$ square inches.	12 hours
<u>OR</u>		
OPPS inoperable.		

### SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify a maximum of one SI pump is capable of injecting into the RCS.	12 hours
SR 3.4.12.2	Verify each ECCS accumulator is isolated.	Once within 12 hours and every 12 hours thereafter
SR 3.4.12.3	Verify PORV block valve is open for each required PORV.	72 hours
SR 3.4.12.4	<p>-----NOTE-----</p> <p>Not required to be performed until 12 hours after decreasing RCS cold leg temperature to <math>\leq</math> the OPPS enable temperature specified in the PTLR.</p> <p>-----</p> <p>Perform a COT on OPPS.</p>	31 days
SR 3.4.12.5	Perform CHANNEL CALIBRATION for each OPPS actuation channel.	24 months